

REMARKS

Claims 1-30 are now pending in the application. Claims 1-30 stand rejected. Claims 1, 8, 9, 13, 20, 22, and 24 are amended. Claim 25 is cancelled. Support for the amendments maybe found in the specification as originally filed at paragraphs 15, 24, and 30 of the originally filed Specification. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

35 U.S.C. § 102(e)

Claims 1, 13, 16, and 20-23 stand rejected under 35 U.S.C. 102() based on Hedge (U.S. Pat. No. 6,570,875). This rejection is respectfully traversed.

Hedge is generally directed toward automatic filtering and creation of virtual LANs among a plurality of switch ports. In particular, Hedge is directed toward switch routing of packets by examining a flow with which they are associated (abstract), where a flow can be IP addresses of source and destination hosts, and can be extracted from a packet header (column 5, lines 31-50; column 9, lines 44-49). However, each router of Hedge must then look up the flow in a table in order to obtain appropriate routing information for setting the destination field in the header for the next hop (abstract; column 11, lines 20-40). Thus, Hedge does not teach directly extracting the IP address from the options field of the packet header, and directly formatting the destination field with the IP address. Nor does Hedge teach that IP addresses for an originating network device and an intermediate routing device are embedded in an options field of the packet header.

Applicants' claimed invention is generally directed toward traversable network address translation with hierarchical internet address architecture. In particular, Applicants' claimed invention is directed toward directly extracting the IP address from the options field of the packet header, and directly formatting the destination field with the IP address. For example, independent claim 1, as amended, recites, "extracting the at least one private IP address directly from the options field; and directly formatting a destination IP address field of the packet header with the at least one private IP address prior to forwarding the data packet." Claim 13 has been amended to recite similar subject matter.

Applicants' claimed invention is also directed toward collecting a sequence of IP addresses in an options field of the packet header so that peer to peer communication can be achieved between public and private hosts through suitably operable routers on the private network. For example, independent claim 20 has been amended to recite, "an IP address for an originating network device embedded in an options field of the packet header, and an IP address for an intermediate routing device embedded in the options field of the packet header."

Thus, Hedge does not teach all of the limitations recited in independent claims 1, 13, and 20.

Accordingly, Applicants respectfully request the Examiner reconsider and withdraw the rejection of independent claims 1, 13, and 20 under 35 U.S.C. 102(e), along with rejection on these grounds of all claims dependent therefrom.

35 U.S.C. § 102(b)

Claims 9-12, 19, and 24-30 stand rejected under 35 U.S.C. 102(b) based on Stai et al (U.S. Pat. No. 6,401,128). This rejection is respectfully traversed.

Stai et al. is generally directed toward sending and receiving frames between a public and private network (title). In particular, Stai et al. is directed toward assigning phantom addresses to public devices when routing in the private network, and translating the phantom addresses to public addresses when sending to the public network (abstract). However, Stai et al. relies on its routers at edges of the private domain to employ a public to private and private to public address translation mapping tables at each router as evidenced at Figures 2 and 3, elements 210 and 310. Moreover, Stai et al. only uses destination and source fields of the packet header, and not an options field as evidenced at Figures 2 and 3, elements 202 and 302. Accordingly, Stai et al. does not teach directly extracting an IP address from an options field of a packet header and directly reformatting a source or destination field of the header with the IP address.

Applicants' claimed invention is generally directed toward traversable network address translation with hierarchical internet address architecture. In particular, Applicants' claimed invention is directed toward formatting an options field of a packet header upstream with a source or destination IP address, directly extracting the IP address from the options field of the packet header downstream, and directly formatting a source or destination field of the packet header before forwarding the packet further downstream. For example, independent claim 9, as amended, recites, "the network routing device being operable to extract directly the at least one private IP address from

the destination address options field and format directly a destination IP address field of the packet header with the at least one private IP address.” Similarly, claim 19 as originally filed recites, “the network routing device being operable to format an options field of the packet header with the original source private IP address and format the source IP address field of the packet header with a public interface IP address for the network routing device prior to forwarding the data packet.” Also, claim 24, as amended, recites, “wherein said traversable network address resides in an options field of an IP packet header, and source and destination fields of the IP packet header are directly formatted with existing IP addresses that hosts have been assigned”. Thus, Stai et al. does not teach all of the elements of independent claims 9, 19, and 24.

Accordingly, Applicants respectfully request the Examiner reconsider and withdraw the rejection of independent claims 9, 19, and 24 under 35 U.S.C. 102(b), along with rejection on these grounds of all claims dependent therefrom.

35 U.S.C. § 103(a)

Claims 2-8, 14-15, and 17-18 stand rejected under 35 U.S.C. 103(a) as unpatentable over Hedge (U.S. Pat. No. 6,570,875) in view of Stai et al. (U.S. Pat. No. 6,401,128). This rejection is respectfully traversed.

For discussion of Hedge and Stai et al., Applicants respectfully direct the Examiner’s attention to remarks detailed above. The differences between the teachings of the cited references and Applicants’ claimed invention as detailed above are significant because the need for routing tables of any kind is avoided by use of separate options fields and source and destination fields, the dynamic collection of IP addresses for intermediate routers in the options fields, and the direct extraction of IP addresses

from options fields and direct formatting of source and destination fields. Moreover, the proposed addressing scheme uses existing addresses that hosts have been assigned, and therefore requires no new address assignment and allocation scheme. As a result, peer to peer communication between public and private devices is greatly facilitated.

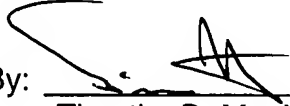
Accordingly, Applicants' respectfully request the Examiner reconsider and withdraw the rejection of claims 2-8, 14-15, and 17-18 under 35 U.S.C. § 103(a) based on their dependence from allowable base claims.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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